

THE AMERICAN CRUCIFERAE OF SESSÉ
AND MOCIÑO

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The publication of two separate books¹ on the flora of Mexico a century after they were largely prepared by Sessé and Mociño introduced many plant names into the literature that have never been satisfactorily interpreted. Some of these were new at the time of publication. Others are misapplications, usually arising from misidentifications. Very often the misapplication is completely outside of the proper genus, leading to a great deal of confusion. To take an example from the Cruciferae, the name *Arabis pinnata* has been in the records since its publication in 1889 but there has been no understanding of its application. The specimen labeled *Arabis pinnata* in the Sessé and Mociño collection belongs to the wholly unsuspected genus *Rorippa*. As suggested by Sprague², for the interpretation of Sessé and Mociño's descriptions it is crucial to study the original specimens from the Madrid Botanical Garden and the drawings copied under the direction of A. P. DeCandolle from the originals of Sessé and Mociño. The latter were apparently lost sometime after having been copied.

In the present study, I have been fortunate to have available for careful examination the specimens of Cruciferae collected in "Nueva España" by Sessé, Mociño, Castillo and Moldano, now on loan from the Madrid Botanical Garden to the Chicago Natural History Museum. Furthermore, one of the copy-sets of tracings of "Calques des Dessins de la Flore du Mexique, de Mociño et Sessé" is in the Gray

¹ Sessé, Martino et Josepho Mariano Mociño. *Plantae Novae Hispaniae*. 1-184. 1887-1890. Originally published in *La Naturaleza*, Volume 1, series 2. For dates of publication see *Lloydia* 5:95-96. 1942. Edition 2 with different pagination published in 1893.

Sessé, Martinus et Josephus Mariannus Mociño. *Flora Mexicana*. 1-263. 1891-1897. Pages 1-125 published before edition 2 in *La Naturaleza*, Volume 2, series 2. Edition 2 with different pagination published in book form in 1894.

² Sprague, T. A. Sessé and Mociño's *Plantae Novae Hispaniae* and *Flora Mexicana*. *Kew Bull.* 1926: 417-425. 1926.

Herbarium library and has been helpful in the interpretation of *Nasturtium mexicanum*.

On the whole, the specimens of Sessé and Mociño are adequate for identification and some of them were beautifully prepared. Several sheets have two different species mounted on them. These mixtures might have taken place during the handling of the specimens subsequent to their original collection but such mixtures in the Cruciferae occur quite frequently at the time the material is gathered even with the best collectors. At the present it is not possible to guess as to how the mixtures might have come about.

In the notes that follow, the genera and species represented in the collection are given alphabetically, together with pertinent comments. This is followed by a listing of the names that appear in the various editions of Sessé and Mociño's *Plantae Novae Hispaniae* and their *Flora Mexicana*, together with the modern name to which each should be referred whenever this could be determined.

Arabis — probably *A. Stellari* DC. The sheet numbered 3341 has an old label marked "15-2 Brassica violacea". The specimens, though in flower and young fruit only, are certainly *Arabis*, but they do not belong to any known Mexican species. They do compare favorably with material of *A. Stellari* from eastern Asia and I believe they represent that species.

Brassica campestris L., Sp. Pl. 666. 1753. Sheet number 3344 is a mixture, having one plant of *B. campestris* and one plant of *Romanschulzia arabiformis* on it.

Brassica nigra (L.) Koch in Roehl. Deutschl. Fl. 3: 713. 1833, based on *Sinapis nigra* L., Sp. Pl. 668. 1753. Sheet No. 3347 has an old label with some descriptive matter pertaining to the silique and foliage. In addition, this label bears the misspelled generic name "*Synapis*" plus "15-2" and an undecipherable word associated with *Synapis*.

Cakile lanceolata (Willd.) O. E. Schulz in Urban, Symb. Antill. 3: 504. 1903, based on *Raphanus lanceolatus* Willd., Sp. Pl. 3: 562. 1800. There are two sheets of number 3348

with old labels giving "15-2 *Raphanus Raphanistrum*" and each sheet has several pieces of plant on it. The characters of *Cakile lanceolata* are well shown by the material and it is assumed that the specimens were gathered somewhere along the coast of Mexico or Central America.

Cochlearia — probably *C. officinalis* L. Sheet number 3358 bears old labels marked "15-2 *Subularia aquatica*". In the envelope on this sheet are two plants of *Cochlearia* and one plant belonging to the Caryophyllaceae which I have not attempted to identify. Certainly, the *Cochlearia* did not come from Mexico or the Central American area.

Descurainia streptocarpa (Fourn.) O. E. Schulz, Pflanzenr. IV. 105: 317. 1924, based on *Sisymbrium streptocarpum* Fourn., Recherch. Crucif. 58. 1865. The one sheet numbered 3362, having parts of three plants present, is referred to *Descurainia streptocarpa* without certainty because there are only young siliques available for examination. However, all of the characteristics shown by the specimens do compare favorably with authentic material of *D. streptocarpa*.

Draba jorullensis H. B. K., Nov. Gen. et Sp. Pl. 5:78. 1821. Excellent specimens of *Draba jorullensis* are present on sheet No. 3346, which has "15-1 *Bunias orientalis*" on the original label. A second collection, No. 3359, consists of two sheets. The old label gives "15-1 *Subularia*?" followed by a fairly adequate description of the calyx, corolla and silique. The two collections are slightly different but both fall within the overall variation of *D. jorullensis* as treated in Hitchcock's monograph³.

Eruca sativa Gars., Traite Pl. Anim. 2:166. 1767. One plant and part of another of this species are on Sheet No. 3343, together with the top of a plant of *Nasturtium Gambelii* (Wats.) Schulz. The old label reads "15 . . . 2 *Brassica Eruca*".

³ Hitchcock, C. Leo. A Revision of the Drabas of Western North America. Univ. Wash. Publ. Biol. 11:95-96. 1941.

Halimolobos Berlandieri (Fourn.) O. E. Schulz, Pflanzenr. IV. 105:289. 1924, based on *Sisymbrium Berlandieri* Fourn. Recherch. Crucif. 105. 1865. A sheet bearing No. 3339 and with an old label reading "15-2 Brassica" has a mixture of *H. Berlandieri* and *Pennellia patens* (Schulz) Rollins. Otherwise, *H. Berlandieri* is represented in the collection by No. 3350, which consists of 2 sheets, one of which bears on the original label "15-2 Erysimum". A fourth sheet of *H. Berlandieri* has been assigned No. 3352 and the original label on it reads "15-2 Sisymbrium".

Halimolobos polyspermus (Fourn.) O. E. Schulz, Pflanzenr. IV. 105:294. 1924, based on *Sisymbrium polyspermum* Fourn. Recherch. Crucif. 103. 1865. A single sheet belonging to *H. polyspermus* and with the old label reading "15-2 Turritis?" is present in the collection.

Lepidium sordidum Gray, Pl. Wright. 1:10. 1852. The collection now numbered 3355 bears "15-1 Lepidium rud-erale" on the old label, together with some descriptive material on the flowers and foliage. The two plants present on the sheet are more comparable to other specimens of *L. sordidum* from the region of Mexico City than to those from farther north in Mexico or from Texas.

Lepidium virginicum L., Sp. Pl. 645. 1753. Number 3363 with an old label giving the name "*Clipeola mexicana* N." is referable to *Lepidium virginicum*. This early record, although not conclusive, certainly is evidence in support of the probability that *L. virginicum* is native to Mexico and not merely an introduced weed, as some have contended.

Lesquerella argyraea (Gray) Watson, Proc. Am. Acad. 23:254. 1888, based on *Vesicaria argyraea* Gray, Bost. Jour. Nat. Hist. 6: 146. 1850. An unpublished name, "*Miagramm occidentale*" appears on the original label of the specimen referable to *L. argyraea*. There is no indication as to the place of collection. The number 15-1 is in the original handwriting and the number 3357 has been added.

Lesquerella argentea (Schauer) Watson, Proc. Amer. Acad. 23:252. 1888, based on *Vesicaria argentea* Schauer,

Linnaea 20:720. 1847. Number 3360 bears the old label "Subularia? cl. 14 N. E." Other than the word *Subularia*, there is no significance in the label information for me. The specimen is in good fruit and is well preserved. The siliques are strongly flattened contrary to the septum and the replum has a lanceolate shape. Actually, this Sessé-Mociño specimen adds another facet of variation to that heretofore recognized in *Lesquerella argentea*. The value of the specimen for study would be considerably enhanced if some locality information for it were available.

Nasturtium Gambelii (Wats.) O. E. Schulz, Bot. Jahrb. 66:98. 1933, based on *Cardamine Gambelii* Watson, Proc. Amer. Acad. 11:147. 1876. There is a sheet of *N. Gambelii* marked "15-2 Erysimum" on the old label and assigned the new number 3349. A second sheet, with the new number 3343, is a mixture of *N. Gambelii* and *Eruca sativa*. Although no locality data are given, the specimens almost certainly came from the Valley of Mexico, for they are closely similar to *Pringle 6318* and *Bourgeau 18*, both of which came from the Mexico City area. *N. Gambelii* has a peculiarly restricted distribution in two widely separated areas, southern California and the Valley of Mexico. The type comes from Santa Barbara, California, and is nearly glabrous as are other specimens from there and from Los Angeles. However, material from San Bernardino has leaf-rachises, upper stems and pedicels hirsute with flat trichomes. The pedicels tend to be flattened and the upper surface only is hirsute. The same type of trichomes and the pattern of trichome distribution, as in the San Bernardino material, is found on specimens from Mexico.

Nasturtium Gambelii is in many ways similar to *N. microphyllum* [*N. officinale* var. *microphyllum*] and appears to be more properly placed in *Nasturtium* than in *Cardamine*, where most authors have treated it.

Pennellia patens (O. E. Schulz) Rollins, comb. nov., based on *Heterothrix patens* O. E. Schulz, Pflanzenr. 4. fam. 105. 296. 1924. The upper part of a single plant of *Pennellia*

patens is present on a sheet, No. 3339, which also has on it the upper part of a plant of *Halimolobos Berlandieri* (Fourn.) Schulz.

Pennellia longifolia (Benth.) Rollins, comb. nov., based on *Streptanthus longifolius* Bentham, Pl. Hartweg. 10. 1839. Number 3338 with the old label showing "15-2 ic. D"; 2 sheets of No. 3354 with the old label bearing "15-2 Turritis?" and No. 3361 with the old label bearing "15-2 Genus . . . Yc. D." all belong to *Pennellia longifolia*. This species has been variously known under the generic names *Streptanthus*, *Thelypodium*, and *Lamprophragma*. However, there is no doubt about the close affinity of *Pennellia micrantha*, the type species of *Pennellia*, and *P. longifolia*. In early stages of growth and up to and including early flowering, it is difficult to distinguish between *P. micrantha*, *P. longifolia* and *P. patens*. Certainly they should be together in the same genus. They are out of place in both *Streptanthus* and *Thelypodium*. The genus *Pennellia* was founded by Nieuwland to replace the later homonym *Heterothrix* of Rydberg, which in turn was based on *Streptanthus micranthus*. *Pennellia* thus becomes the logical choice to accommodate the two species here considered.

Romanschulzia arabiformis (DC.) Rollins, Contrib. Dudley Herb. 3: 221. 1942, based on *Nasturtium arabiforme* DC., Syst. 2: 200. 1821. Three numbers belong to *R. arabiformis* as follows: No. 3340 "15-2 Brassica"; No. 3342 "15-2 Brassica? glandulae in paucis floribus"; and No. 3344 "15-2 Brassica campestris". The latter number is a mixture and does, in fact, have one plant of *Brassica campestris* on the sheet.

Rorippa mexicana (Moc. & Sessé). Standl. & Steyermark, Field Mus. Bot. 23: 54. 1944, based on *Nasturtium mexicanum* Moc. & Sessé in DC., Reg. Veg. Syst. Nat. 2: 193. 1821. cf. also DC., Calques des Dessins de la Flore du Mexique, de Mociño et Sessé, pl. 18. 1874.

This original label of the holotype bears the number 15-2 and the name *Sisymbrium amphibium*. There is no other information except the later assigned number 3351. The

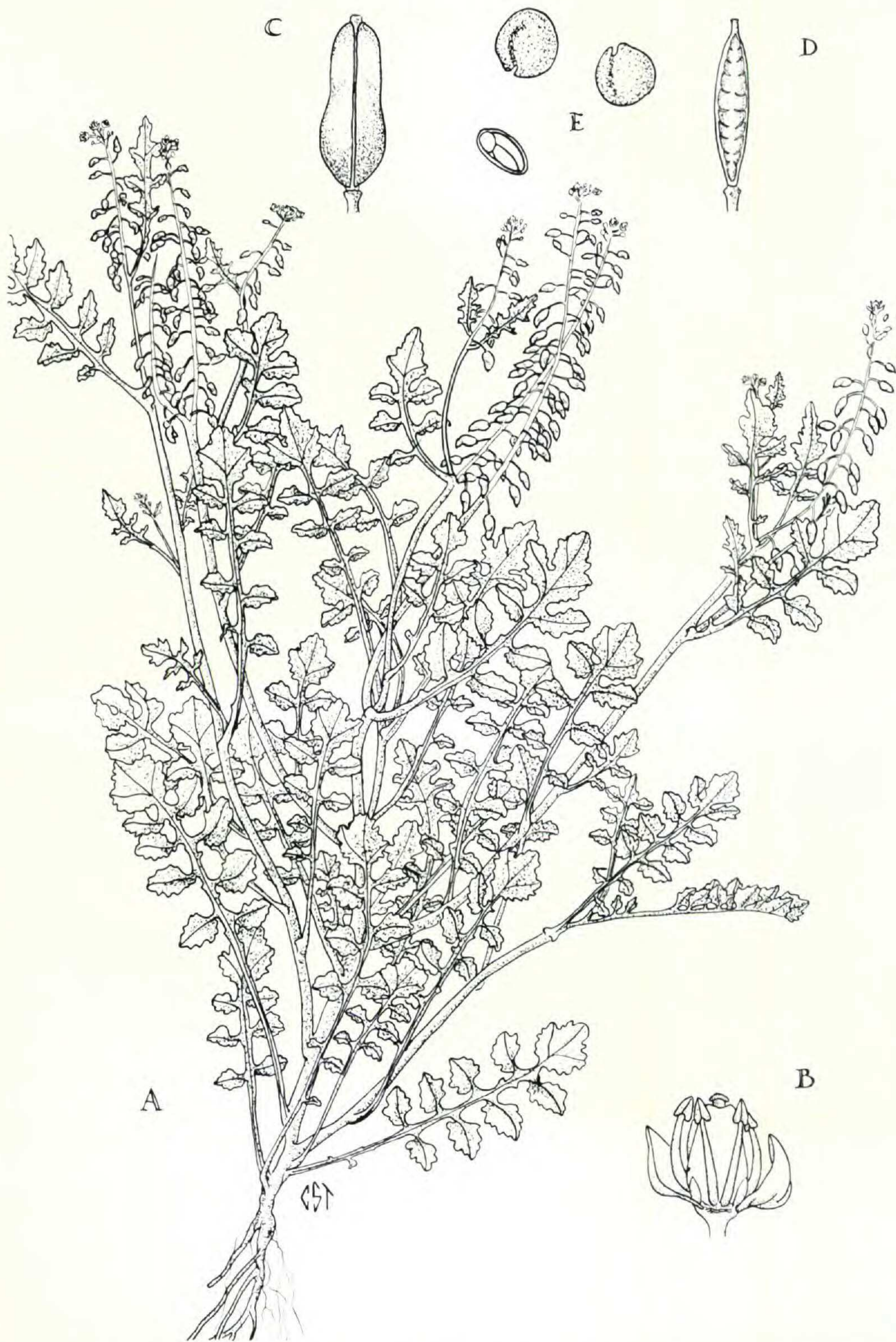


FIG. 1. *Rorippa pinnata* (Sessé & Mociño) Rollins. A — habit sketch x $\frac{1}{2}$; B — flower x 10; C — replum x 3; E — seeds x 10. Drawings from *Pringle* 3552 by C. S. Tsao.

holotype compares favorably with a tracing of the original illustration cited by DeCandolle at the time of the first publication of *Nasturtium mexicanum*, where "Moc. Sess. & Cerv." are cited as the authors of these Mexican Icones. In later publications, DeCandolle referred only to "Moc. & Sesse" as the authors of the same unpublished work. I have followed the more recent practice, which is to attribute *Nasturtium mexicanum* to Mociño and Sessé.

Rorippa mexicana is nearest related to *R. Walteri* of southeastern United States. Its geographical range appears to be from Chihuahua southward in the plateau area of Mexico to Costa Rica. However, a thorough study of *Rorippa* in Mexico needs to be made, not only to accurately determine identities but also to properly ascertain the range of variation within each species.

Sessé and Mociño did not use the name *Nasturtium mexicanum* in their own publications on the flora of Mexico.

Rorippa pinnata (Sessé & Mociño) Rollins, comb. nov., based on *Arabis pinnata* Sessé & Moc. La Naturaleza, ser. 2, 1; appendix p. 104. 1889. The name *Arabis pinnata* has been very much of a puzzle up to the present because the original description associated with it was much too terse to offer any good clues as to what genus the plants described were certainly referable. I had always assumed that at least a plant with linear siliques was the basis for the name. However, with the Sessé and Mociño holotype in hand, the name can at last be settled. The original label data corresponds very closely with the published habitat notes and there is no question but that the specimen under study is the type. The original label reads, "15-2 *Arabis pinnata* N. Habitat ad margines rivulorum Guaunahuacae". The newly assigned number is 3345.

Most of the specimens of *Rorippa pinnata* in the Gray Herbarium have been undetermined or referred to *R. mexicana*. The following Mexican collections belong to *R. pinnata*: Valley of Mexico. Federal Dist., 6 Nov., 1902, *Pringle 11328*; same locality, 27 Aug., 1890, *Pringle 3552*; same locality, 3 June, 1896, *Pringle 6302*; Canal de Santa Anita,

near Mexico, 25 April [1863-66] *Bourgeau* 16; Crucero-Agua Blanca, Temascaltepec, 9 Nov., 1935, *G. B. Hinton* 8329. Fig. 1.

Following are the names of Cruciferae found in *Plantae Novae Hispaniae* and *Flora Mexicana*:

Arabis pinnata (Pl. Nov. Hisp. 104; ed. 2, 97) = **Rorippa pinnata** (Sessé and Mociño) Rollins.

Brassica campestris (Fl. Mex. 168; ed. 2, 154) = **B. campestris** L. mixed with **Romanschulzia arabiformis** (D C.) Rollins.

Brassica chinensis (Pl. Nov. Hisp. 105; ed. 2, 98), specimen unknown.

Brassica eruca (Pl. Nov. Hisp. 105; ed. 2, 98) = **Eruca sativa** Gars. mixed with **Nasturtium Gambelii** (Wats.) Schulz.

Brassica napus (Pl. Nov. Hisp. 104; ed. 2, 97), specimen unknown.

Brassica oleracea (Pl. Nov. Hisp. 104; ed. 2, 98), specimen unknown.

See above for the identities of three sheets which bear the generic name *Brassica* on old labels.

Bunias orientalis (Fl. Mex. 168; ed. 2, 153) = **Draba jorullensis** H. B. K.

Cheiranthus cheiri (Pl. Nov. Hisp. 104; ed. 2, 97), specimen unknown.

Cheiranthus incanus (Pl. Nov. Hisp. 104; ed. 2, 97), specimen unknown.

Clypeola mexicana (Pl. Nov. Hisp. 104; ed. 2, Clypeola 97) = **Lepidium virginicum** L.

Cochlearia coronopus (Pl. Nov. Hisp. 104; ed. 2, Cochlearia 97), specimen unknown.

Hesperis matronalis (Pl. Nov. Hisp. 104; ed. 2, 97), specimen unknown.

Lepidium iberis (Fl. Mex. 168; ed. 2, 153), specimen unknown.

Lepidium latifolium (Pl. Nov. Hisp. 104; ed. 2, 97), specimen unknown.

Lepidium ruderae (Fl. Mex. 168; ed. 2, 153) = **Lepidium sordidum** Gray.

Raphanus raphanistrum (Pl. Nov. Hisp. 105; ed. 2, 98) = **Cakile lanceolata** (Willd.) Schulz.

Raphanus sativus (Pl. Nov. Hisp. 105; ed. 2, 98), specimen unknown.

Sinapis arvensis (Pl. Nov. Hisp. 105; ed. 2, 98), specimen unknown.

A sheet with the name "Synapis" is *Brassica nigra* but it does not bear any marks or information that would fix it as the basis for the report of *S. arvensis*.

Sisymbrium indicum (Pl. Nov. Hisp. 105; ed. 2, 98), specimen unknown.

Sisymbrium sophia (Pl. Nov. Hisp. 105; ed. 2, 98), specimen unknown.

Turritis hirsuta (Fl. Mex. 168; ed. 2, 154), specimen unknown. There are two sheets in the collection marked "Turritis?", but these could scarcely be the basis for the report of *T. hirsuta*. One is *Halmolobos polyspermus* and the other is *Pennellia longifolia*. — GRAY HERBARIUM OF HARVARD UNIVERSITY.

PLANT LISTS ARE WHERE YOU FIND THEM:
A LIST OF LOCAL FLORAS OF MASSACHUSETTS
PUBLISHED SINCE 1898.

STUART K. HARRIS

In an article on "Wild Flower Identification" which appeared in Massachusetts Audubon for March-April 1958 the statement was made, "Local lists are rare." This raised my hackles, for the New England area, and particularly Massachusetts, is probably better provided with local lists of plants than any region of comparable size in the United States. I know of three¹ important bibliographies of local floras. NATHANIEL LORD BRITTON, 1890: a list of state and local floras of the United States and British America. Annals N. Y. Acad. Sci. 5: 237-299 covers the period up to May 1890 and contains 45 items for Massachusetts. MARY A. DAY, 1899, 1900: the local floras of New England. Rhodora 1: 111-120, 138-142, 174-178, 194-196, 208-211 and 2: 254-257 includes items up to 1 January 1899 and contains 95 titles for Massachusetts. FRANK E. EGLER, 1950: regional vegetation literature III. Massachusetts. Phytologia 3: 193-237 is the most recent but has a somewhat broader coverage, including vegetational as well as floristic papers.

In the present list I have attempted to include papers which have appeared since the publication of Miss Day's list plus a few additions and corrections to that list. I am sure that my series is not complete but I think that it includes most of the major floras as well as a few very minor ones. Most of the items have been seen by me but a few titles are taken from a variety of sources. I have also included a number of short notes adding species to published floras. It is difficult to know exactly where to draw the line

¹ In addition to the standard list of floras by S. F. Blake and Alice C. Atwood, Geographical Guide to Floras of the World, U. S. Dept. of Agric. Misc. Publ. 401. 336 pp. 1942.